DISCUSSION

Like Taxi Drivers Disappearing in the Rain?

Historical Evidence on the Usability of Liquidity Buffers

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Discussant comments
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CONTEXT of the TITLE

Goodhart's taxi at the rainy airport

Goodhart told this story in conversation: he arrived at a London airport on a rainy night and was relieved to see a taxi at the stand.

When he approached, the driver explained that *rules required one taxi always be present at the stand* — they had to wait until the next cab arrived. None did.

The minimum reserve requirement was the rule.
The taxi driver was the equivalent of reserve buffer.

WHY THIS PAPER MATTERS

- First bank-level monthly panel of NYCH liquidity, 1888–1912
- Confirms what contemporaries (Sprague, Cannon, Andrew, Kemmerer, Conant, Noyes, Myers) suspected qualitatively a century ago
- *During crises, banks reached the regulatory floor and waited for the next taxi (usually)*

3:00 — SUMMARY

What the paper does

DATA

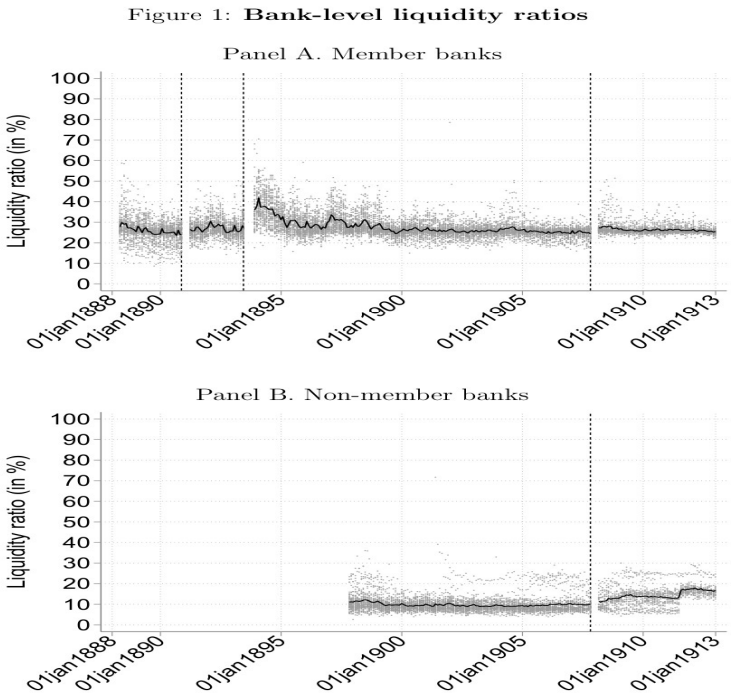
- Hand-collected monthly panel from the Commercial and Financial Chronicle
- NYCH members 1888–1912 (16,804 obs · 48–66 banks)
- Affiliated non-members 1897–1912 (6,853 obs · 22–52 banks)
- Liquidity ratio = (specie + legal tender) / net deposits — NYCH definition

FOUR HEADLINE FINDINGS

- Members cluster at ~27% liquidity; non-members at ~11%
- Pronounced seasonality in deposits and ratios for members; muted for non-members
- Members accommodate seasonal flows (ratio +Δdeposits, –Δcall rate); non-members do not
- All banks deplete buffers ~1.5–1.8 pp in stress, but members do so less in relative terms (7% vs 14% of normal-time mean)

FINDING 1 — LEVELS

Members anchor at 27%; non-members near 11%



Source: Carlson & Rieder, Figure 1.

WHAT TO NOTICE

- Member ratios sit just above the 25% NYCH minimum — almost never below
- Non-member ratios run far lower (~11%), under weaker statutory standards
- Vertical dotted lines: Nov 1890, Jun 1893, Oct 1907 suspensions
- Visible level shift in non-member ratios after 1907

FINDING 4 — STRESS

Buffers fall, but members fall less when the floor is in sight

Table 8: **Liquidity ratios in times of stress**

	Outcome: liquidity ratio (in percent)					
	(1)	(2)	(3)	(4)	(5)	(6)
All stress	-1.8123***			-1.5369***		
	(0.1913)			(0.2003)		
Other stress		-1.8010***			-1.4775***	
		(0.2079)			(0.2113)	
Severe stress			-1.7842***			-1.8317***
			(0.3205)			(0.4032)
Observations	16,797	16,797	16,797	6,846	6,846	6,846
Adjusted R^2	0.17	0.16	0.16	0.57	0.57	0.57
Banks	Members	Members	Members	Non-memb.	Non-memb.	Non-memb.
Sample	All	All	All	All	All	All
Bank and month FE	Yes	Yes	Yes	Yes	Yes	Yes

This table presents coefficient estimates obtained from regressing the bank-level liquidity ratio on indicators for stress moments. All stress indicates months of the three severe stress events (suspension of deposit convertibility in 1890, 1893 and 1907) and all months in which the call loan rate was above 10%. The dummy for stress indicates months of the three severe stress events (suspension of deposit convertibility in 1890, 1893 and 1907) and all months in which the call loan rate was above 10%. The dummy for severe stress includes only the former, whereas the indicator for other stress events only covers the call loan rate spikes. We include bank and month fixed effects to control for time-invariant unobserved heterogeneity at the bank level and seasonal patterns over time. Clustered (bank-level) standard errors in parentheses. Asterisks indicate statistical significance: * for $p < 0.1$, ** for $p < 0.05$, and *** for $p < 0.01$. Source: *Commercial and Financial Chronicle*; own calculations.

[13]Note that this finding does not contradict the results in the previous paragraph. Banks close to the liquidity minimum do respond less in absolute terms, but because many member banks cluster near the

Source: Carlson & Rieder, Table 8.

TAKEAWAY

- Members: −1.8 pp in stress; non-members: −1.5 to −1.8 pp
- Relative depletion ≈ 7% of normal-time mean for members vs 14% for non-members
- Members closer to the 25% floor are less responsive — Carlson (2015) ambiguous enforcement of regulatory reserve requirement minimums
- Severe-stress and 'other-stress' coefficients are near-identical: panics are extreme manifestations of the same stringency

Only the beginning…

Why this is a material contribution

First

bank-level monthly panel of the New York money market across the National Banking Era

Sprague had aggregates and judgment.
This paper has the cross-section.

THREE CLAIMS WORTH MAKING EXPLICITLY

- Confirming a long-standing qualitative consensus with high-quality micro data is itself a real contribution
- Cross-sectional moments — member-vs-non-member depletion ratios, distance-to-floor × deposit response — are not in Sprague or Kemmerer
- Then the historical results sit naturally alongside the modern Basel buffer-usability literature

SOME SUGGESTIONS

Engage the contemporary observers and the NMC literature

Sprague (1910 NMC)

1873, 1884, 1890, 1893, 1907 panics in close institutional detail; argues NBA reserve regime was inelastic and the NYCH only a partial private substitute for the central bank the U.S. lacked.

Cannon (1900 NMC)

Institutional plumbing of the NYCH — daily settlement, special examinations, conditions for issuing loan certificates in 1860, 1873, 1884, 1890, 1893, 1907.

Andrew (1906 QJE)

Cleanest pre-Kemmerer statement of the agricultural origin of monetary seasonality. Pair with Kemmerer rather than citing Kemmerer alone.

Conant & Noyes (1909)

Financial-press perspective. Useful for placing 1890 — one of the paper's three identifying observations and currently underweighted — in real-time context.

Myers (1931)

Draws the explicit reform moral: a rigid 25% reserve was binding precisely when binding was costly. Underwrites the policy-relevance of the paper's findings.

Suggested approach

Pair each empirical finding with the contemporary observer who articulated it and the mechanism they proposed; then state what the new data add.

Pair each finding with the observer who articulated it

Empirical finding	Contemporary statement	What the new data add
Seasonality of deposits & ratios	Andrew (1906); Kemmerer (1910) — agricultural / crop-moving cycle	Bank-level evidence; cross-sectional variation by Inter bank exposure
Member ↔ non-member depletion gap	Sprague (1910); Cannon (1900) — NYCH partial private central-bank role	Direct measurement of relative buffer use; identification of which banks deplete more
Reduced response near the 25% floor	Sprague; Myers (1931) — rigid reserve binding when binding is costly	Quantifies attenuation; isolates ambiguity around reserve requirements – enforcement? (Carlson 2015)
No pre-emptive precautionary build-up	Sprague — incentives ran the wrong way; lender-of-last-resort absent	Forward-looking deposit regressions show non-result is robust

What explains the member–non-member volatility gap?

Table 1: **Liquidity ratios by interbank exposure**

	Low IB exposure		*High IB exposure*		*t-stat.*
Member banks					
Average liquidity ratios	27.11	(0.263)	27.61	(0.246)	-1.064
Stand. dev. of liquidity ratios	4.19	(0.215)	4.16	(0.321)	0.080
Unique banks	54		19		
Non-member banks					
Average liquidity ratios	10.73	(0.568)	13.41	(1.208)	-2.252**
Standard dev. of liquidity ratios	2.25	(0.204)	2.60	(0.325)	-0.894
Unique banks	50		18		

Source: Carlson & Rieder, Table 1.

THREE COMPETING READINGS

Regulatory floor. Members face the 25% floor and supervisor expectations — paper's line.

Upstream shock-absorber. Members are upstream in the correspondent network and have more tools (loan certificates, mutual reserves, deeper interbank claims).

Selection. NYCH admitted higher-quality, more conservative institutions.

COMMENT 2 — LOCKHART (1921 JPE)

Cotton finance, the correspondent pyramid, and the autumn squeeze

Country banks (South & West)

Crop-moving demand each autumn; draw on correspondents to finance shipments of cotton and grain

Reserve & central reserve cities

Strain transmitted up the pyramid; interbank claims become the conduit

NYCH member banks

Bear the shock; deploy loan certificates, equalization of reserves, and deeper interbank claims

WHAT THIS REINTERPRETS

- Autumn outflows the paper labels ‘seasonality’ are mechanically country-bank withdrawals from NY reserve agents to finance cotton
- The naive volatility reading is inverted — members may be doing more, not less; their tools let them bear shocks with less ratio variation
- Table 6: high-IB-exposure members show no floor attenuation, consistent with access to additional tools that release the floor constraint

EVIDENCE FOR THE LOCKHART READING

High-IB members: no floor attenuation

Table 6: **Liquidity ratios, deposit flows and reserve constraints**

	Outcome: change in liquidity ratio (in percentage points)					
	(1)	(2)	(3)	(4)	(5)	(6)
Deposit change (in pp)	0.1050***	0.0740***	0.1139***	0.1297***	0.0951***	0.1449***
	(0.0122)	(0.0154)	(0.0149)	(0.0139)	(0.0219)	(0.0172)
Dist. to min. ratio (1st lag, in pp)	-0.3638***	-0.4563***	-0.3522***			
	(0.0277)	(0.0346)	(0.0311)			
Interaction (dep. change × dist to min.)	0.0107***	0.0075	0.0130***			
	(0.0026)	(0.0062)	(0.0032)			
Dist. to mean ratio (1st lag, in pp)				-0.4214***	-0.4874***	-0.4087***
				(0.0268)	(0.0318)	(0.0319)
Interaction (dep. change × dist to mean)				0.0095***	0.0081	0.0110***
				(0.0024)	(0.0052)	(0.0027)
Observations	16,710	4,142	12,293	16,710	4,142	12,293
Adjusted R^2	0.32	0.34	0.33	0.34	0.35	0.35
Banks	Members	Members	Members	Members	Members	Members
Sample	All	High IB	Low IB	All	High IB	Low IB
Fixed effects	Time	Time	Time	Time	Time	Time

This table presents coefficient estimates obtained from regressing monthly changes in the liquidity ratio on monthly changes in deposits. The estimation equation also includes the lagged distance (in percentage points) between a bank's liquidity ratio and the minimum mandated requirement of 25 percent (or, alternatively, the bank's mean ratio outside stress events). Moreover, we interact changes in deposits with the distance measure. We include time fixed effects to control for changes in common shocks over

Source: Carlson & Rieder, Table 6.

READ ACROSS THE COLUMNS

- Cols 1–3: members. Distance-to-floor interaction is significant in (1) and (3) Low-Interbank but not (2) High-IB
- High-IB members behave as if the 25% floor is not really binding — the network gives them other tools
- Cols 4–6: non-members. Floor not relevant; pattern reflects different shock distribution

COMMENT 2 — BURIED LEDE

Bring Table 9 forward

Table 9: Reserve and deposit flows in stress periods

	Outcome: changes in reserves (in percentage points)					
	(1)	(2)	(3)	(4)	(5)	(6)
Deposit change (in pp)	0.4068***	0.3879***	0.4192***	0.0746***	0.0607***	0.0765***
	(0.0175)	(0.0197)	(0.0228)	(0.0090)	(0.0161)	(0.0094)
Deposit change (in pp) × all stress	0.0053	0.0048	0.0042	-0.0177	0.0476**	-0.0430**
	(0.0273)	(0.0526)	(0.0338)	(0.0195)	(0.0222)	(0.0180)
Observations	16,710	4,142	12,293	6,764	1,784	4,707
Adjusted R^2	0.51	0.51	0.50	0.20	0.12	0.26
Banks	Members	Members	Members	Non-memb.	Non-memb.	Non-memb.
Sample	All	High IB	Low IB	All	High IB	Low IB
Fixed effects	Time	Time	Time	Time	Time	Time

Caveat: IB-exposure measure is built from a single 1901 cross-section. Robustness checks using 1888 / 1893 / 1907 cross-sections would strengthen the result.

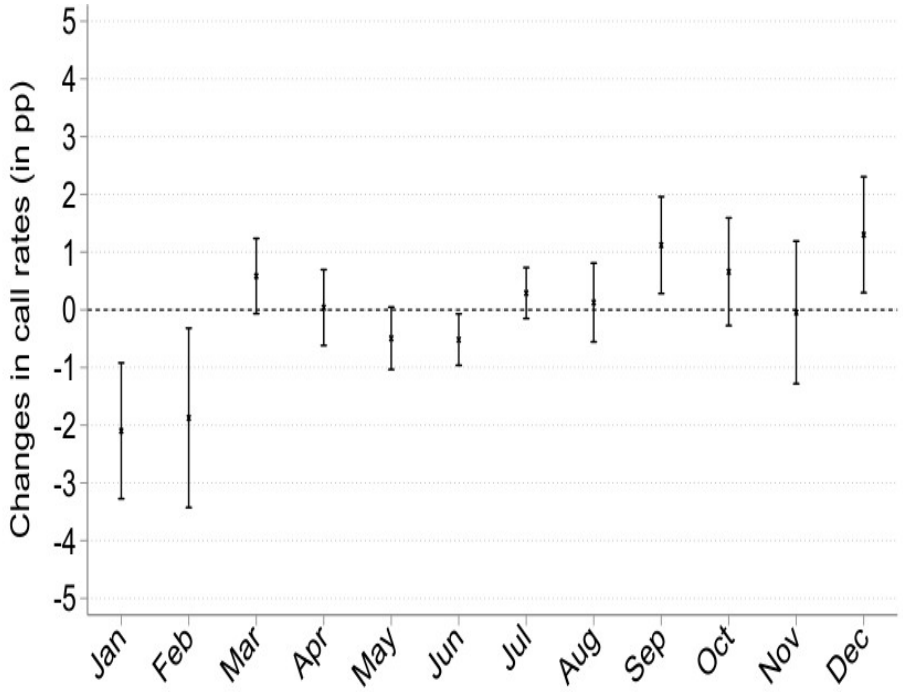
THE INTERESTING RESULT

Cols 5 vs 6: high-IB non-members *augment* their reserve–deposit co-movement under stress (+0.048**); low-IB non-members *attenuate* it (–0.043**).
Direct micro-evidence of upstream/downstream transmission Lockhart describes — observed at the bank level for the first time.

Suggestion: name the high-IB non-members (state banks? trust companies?) and treat this as a headline finding.

COMMENT 3

The macro complement: Hanes & Rhode (2013)



Source: Carlson & Rieder, Figure 2.

LINK BANK BALANCE SHEETS TO THE MACRO STORY

- Hanes & Rhode (2013, JEH): cotton-harvest variation drove gold flows, the call rate, and the business cycle pre-1914
- The seasonality the paper documents is the bank-balance-sheet reflection of the same shock
- Major panics (1873, 1893, 1907) cluster in the autumn currency-stringency window — 1890 and 1907 are autumn episodes; 1893 begins in early summer
- The new dataset can speak to the transmission mechanism, not just describe the pattern

COMMENT 3 — THREE CONCRETE ASKS

Tests the new panel can run that aggregates could not

1 Separate the panics in Table 8

Pool of 1890 / 1893 / 1907 hides heterogeneity. Three dummies — simple exercise. 1890 and 1907 are autumn; 1893 begins in early summer; banks hit hardest differ across episodes.

2 Add cotton & gold-flow controls

Augment the regressions with USDA crop-cycle measures (Hanes–Rhode) or monthly gold flows from the NBER Macrohistory database (already used for the call rate). Test whether depletion is sharper when crop-moving demand and gold outflows are large.

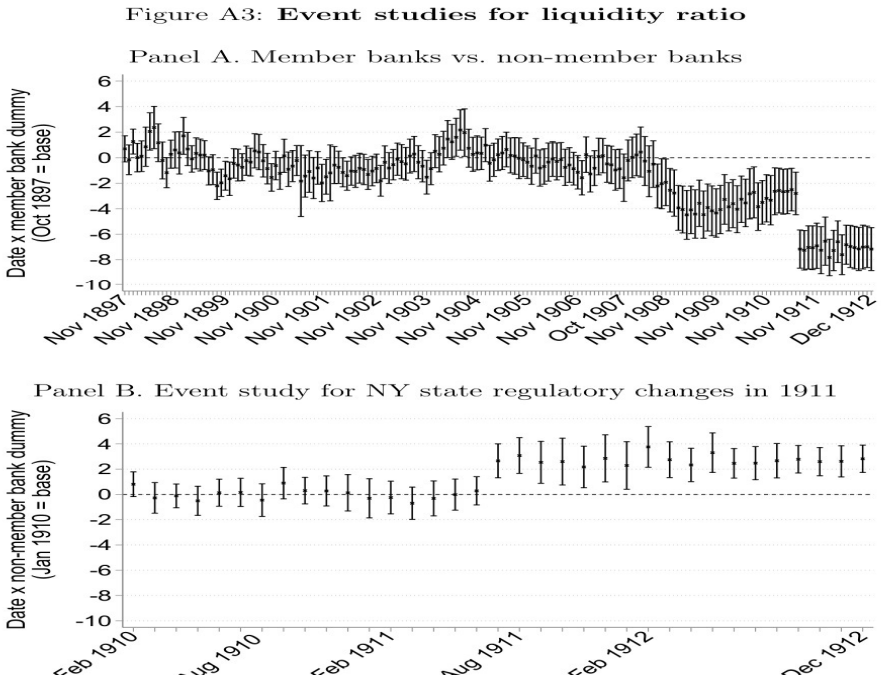
3 Exploit the post-1907 break

Figure A3 makes a 3–4 pp persistent rise in non-member ratios visible. Compare 1898–1907 vs 1908–1912 (and isolate July 1911 NY-state regulatory definition change). Did Aldrich-Vreeland loosen the constraint?

Note: control for the July 1911 NY-state definition change (footnote 3) — it mechanically raises non-member ratios by ≈2 pp.

EVIDENCE FOR ASK #3

Figure A3: a level shift the new data make visible



Source: Carlson & Rieder, Figure A3.

WHAT THE EVENT STUDIES SHOW

- Panel A: non-members rise 3–4 pp relative to members after Oct 1907 — and the gap persists
- Panel B: a sharp jump at the July 1911 NY-state regulatory change — the denominator effect is mechanical
- Open question: how much of the post-1907 shift is Aldrich-Vreeland (1908) vs trust-company contraction vs definition change?

SKIP -SMALLER POINTS

Quick list

Heterogeneity within non-members

State banks, trust companies, private banks pooled. Trust companies are central to 1907. Break apart by charter and discuss explicitly.

Why does the sample start in 1888?

Does the Chronicle data run earlier? An extension to 1884 would add a fourth identifying panic — Sprague's 1884 episode is short and well-documented.

Severe vs ‘other’ stress

Coefficients in Table 8 are nearly identical (−1.78 vs −1.80 for members). Substantive: suspensions are extreme manifestations of the same stringency, not distinct shocks.

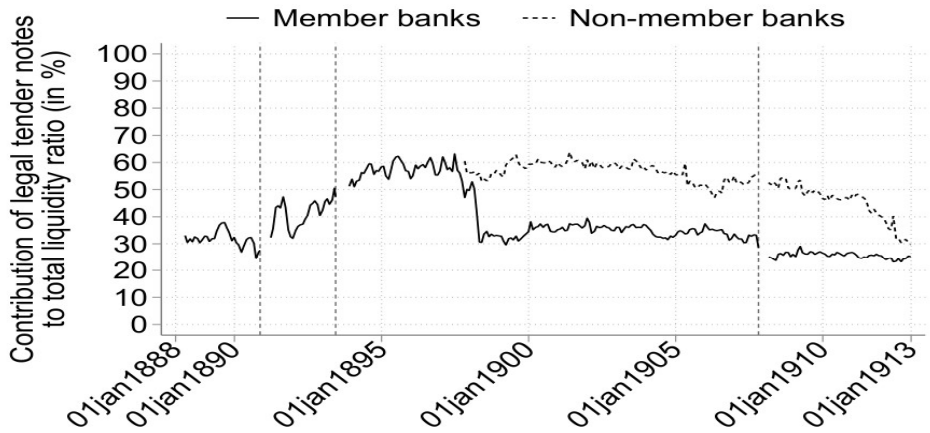
Composition of reserves over time

Figure A4: legal-tender share shifted with the 1898 gold inflows and again around 1908. A paragraph linking this to Friedman–Schwartz / Timberlake would help.

OPTIONAL — RESERVE COMPOSITION

Legal tender vs specie shifted with the gold-standard regime

Figure A4: **Decomposition of aggregate liquidity ratios**



This figure shows the average share (in percent) of the liquidity ratio covered by legal tender notes for NYCH members and non-member banks. The vertical dotted lines indicate moments (November 1890, June 1893 and October 1907) when the NYCH suspended the convertibility of deposits and the publication of weekly data. The remainder of the liquidity ratio was covered by specie. Source: *Commercial and Financial Chronicle*; own calculations.

Source: Carlson & Rieder, Figure A4.

WHY IT MATTERS

- Inflection at the 1898 gold inflows; another around 1908
- 'Reserves' are not a homogeneous asset across the sample — composition speaks to gold-standard regime, sub-treasury operations, 1907 currency shortage
- A short paragraph would tie the paper to Friedman–Schwartz and Timberlake without expanding scope

Bank-level confirmation of a mechanism contemporaries articulated qualitatively as "convention" — that is a real contribution.

THE REVISION

- Frame the paper through the contemporaries' insights — Sprague, Cannon, Andrew, Kemmerer, Conant, Noyes, Myers — and use the new data to *discriminate* among mechanisms they proposed but could not test.
- In particular: regulatory-floor binding (Carlson 2015) versus correspondent-network shock absorption (Lockhart 1921) versus the reform argument (Myers 1931).

> *Possibly: explicit relaxation of the reserve requirement, as in 1873, might have prevented the severe restrictions on convertibility that defined 1890, 1893 and 1907.*

Thank you to the authors and to the organizers.